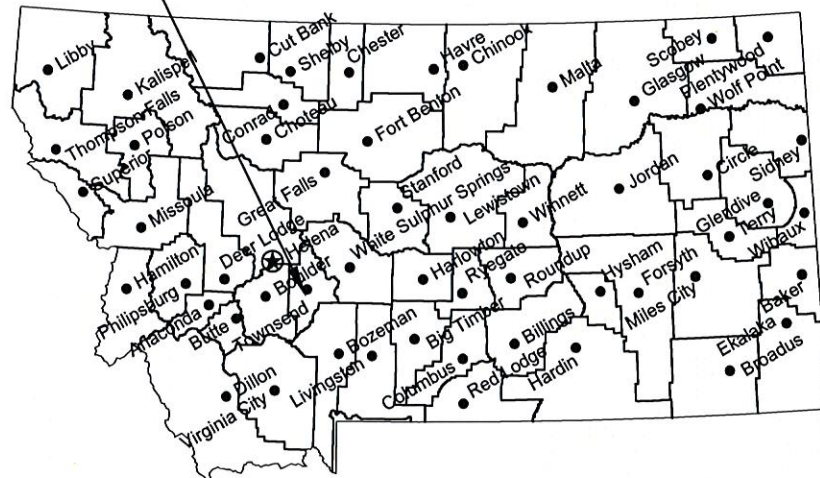


BOAT RAMP REPLACEMENT AND ROAD IMPROVEMENT AT YORK'S ISLANDS FISHING ACCESS SITE

TOWNSEND, MT

FWP # 7133714

PROJECT LOCATION



Location Map

No Scale

PROJECT LOCATION



Vicinity Map

No Scale



MONTANA FISH, WILDLIFE AND PARKS DESIGN AND CONSTRUCTION BUREAU

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DRAWING INDEX

SHEET 1 : COVER
SHEET 2 : OVERALL SITE PLAN
SHEET 3 : SITE DETAIL
SHEET 4 : NEW CAMP SITE DETAIL
SHEET 5 : BOAT RAMP PLAN AND PROFILE
SHEET 6 : CAST IN PLACE RAMP
SHEET 7 : PUSH IN RAMP
SHEET 8 : BOAT RAMP CROSS SECTIONS
SHEET 9 : BARRIER ROCK AND EROSION CONTROL DETAILS



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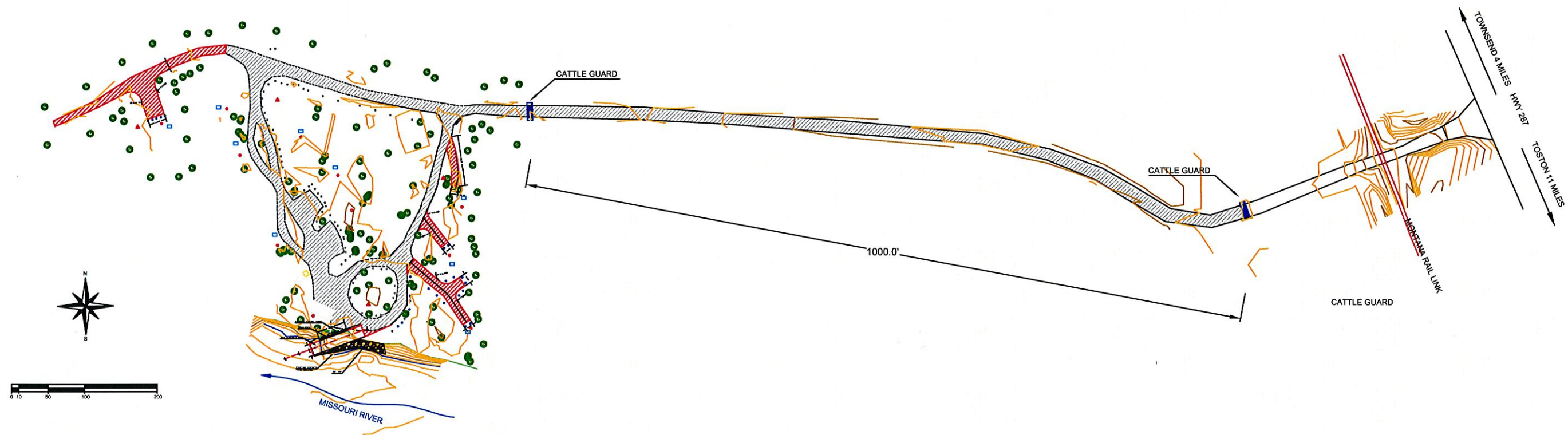
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COVER

York's Islands FAS near Townsend, MT

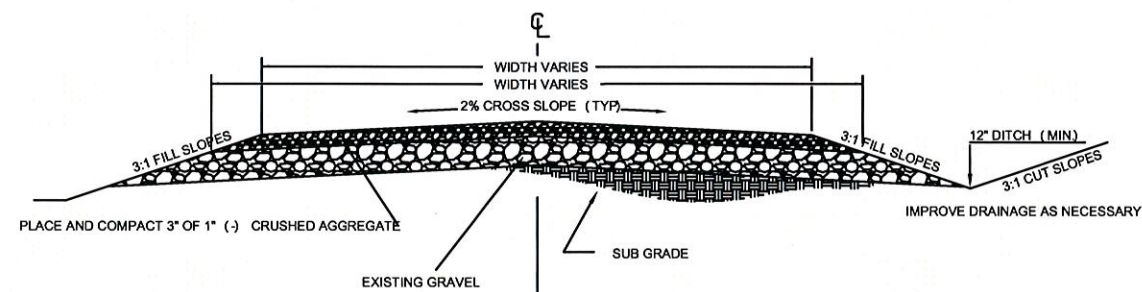


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1
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9



LEGEND

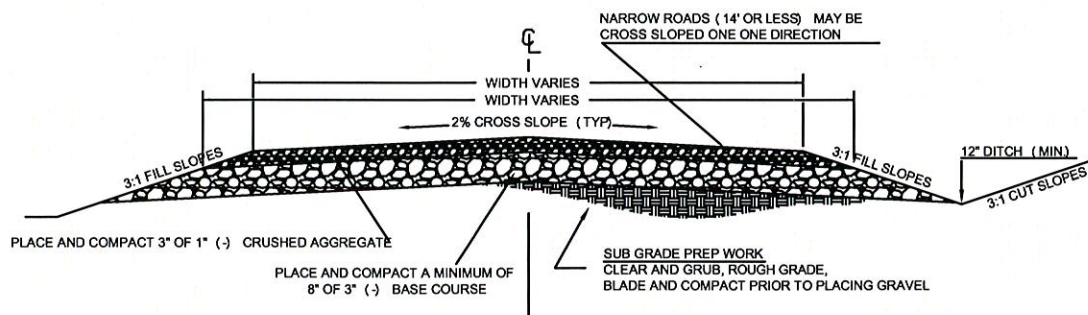
- MAJOR CONTOUR (5 FOOT INTERVAL)
- MINOR CONTOUR (1 FOOT INTERVAL)
- ROADS AND PARKING- EXISTING
- TOP OF BANK
- DAYLIGHT LINE (EDGE OF CUT)
- GRADE AND GRAVEL
- NEW ROADS AND CAMP SITES
- WATERLINE (9/12/13)
- COTTON WOOD TREE
- FIRE RING
- PICNIC TABLE
- EROSION CONTROL FABRIC
- DRAIN ROCK
- RIP RAP
- BARRIER ROCK - EXISTING
- BARRIER ROCK - NEW
- CONTROL POINT



TYPICAL SECTION A : GRADE AND GRAVEL EXISTING ROADS AND PARKING AREAS
NOT TO SCALE

NOTES:

1. BLADE THE EXISTING ROAD MATERIAL TO DEPTH SUFFICIENT TO REMOVE POTHOLES, WASHBOARDS, RESTORE CROSS SLOPES AND ESTABLISH UNIFORM GRADES.
2. IMPROVE THE DRAINAGE DITCHES ADJACENT TO ROADS AS NECESSARY.
3. COMPACT EXISTING GRAVEL SURFACE PRIOR TO PLACING NEW CRUSHED GRAVEL SURFACE.
4. PLACE AND COMPACT 3" OF 1" (-) CRUSHED TOP SURFACING
5. NARROW ROADS (LESS THAN 14') MAY BE CROSS SLOPED IN ONE DIRECTION.



TYPICAL SECTION B : NEW ROAD AND CAMPSITES
NOT TO SCALE

NOTES:

1. CLEAR AND GRUB AREAS DESIGNATED FOR NEW ROADS AND CAMPING. TOP SOIL DEPTH IS VARIABLE, AND TOTAL EXCAVATION IS ESTIMATED AT 55 CY.
2. RETAIN STRIPPED TOP SOIL FOR USE ON BOAT RAMP CUT SLOPE OR PLACE IN AREA DESIGNATED BY FWP ENGINEER.
3. COMPACT EXISTING ROUGH GRADED SURFACE PRIOR TO PLACING NEW GRAVEL BASE COURSE.
4. PLACE AND COMPACT 8" OF 3" (-) BASE COURSE.
5. PLACE AND COMPACT 3" OF 1" (-) CRUSHED TOP SURFACING ON BASE COURSE.
6. NARROW ROADS (LESS THAN 14') MAY BE CROSS SLOPED IN ONE DIRECTION.

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3.2014

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143

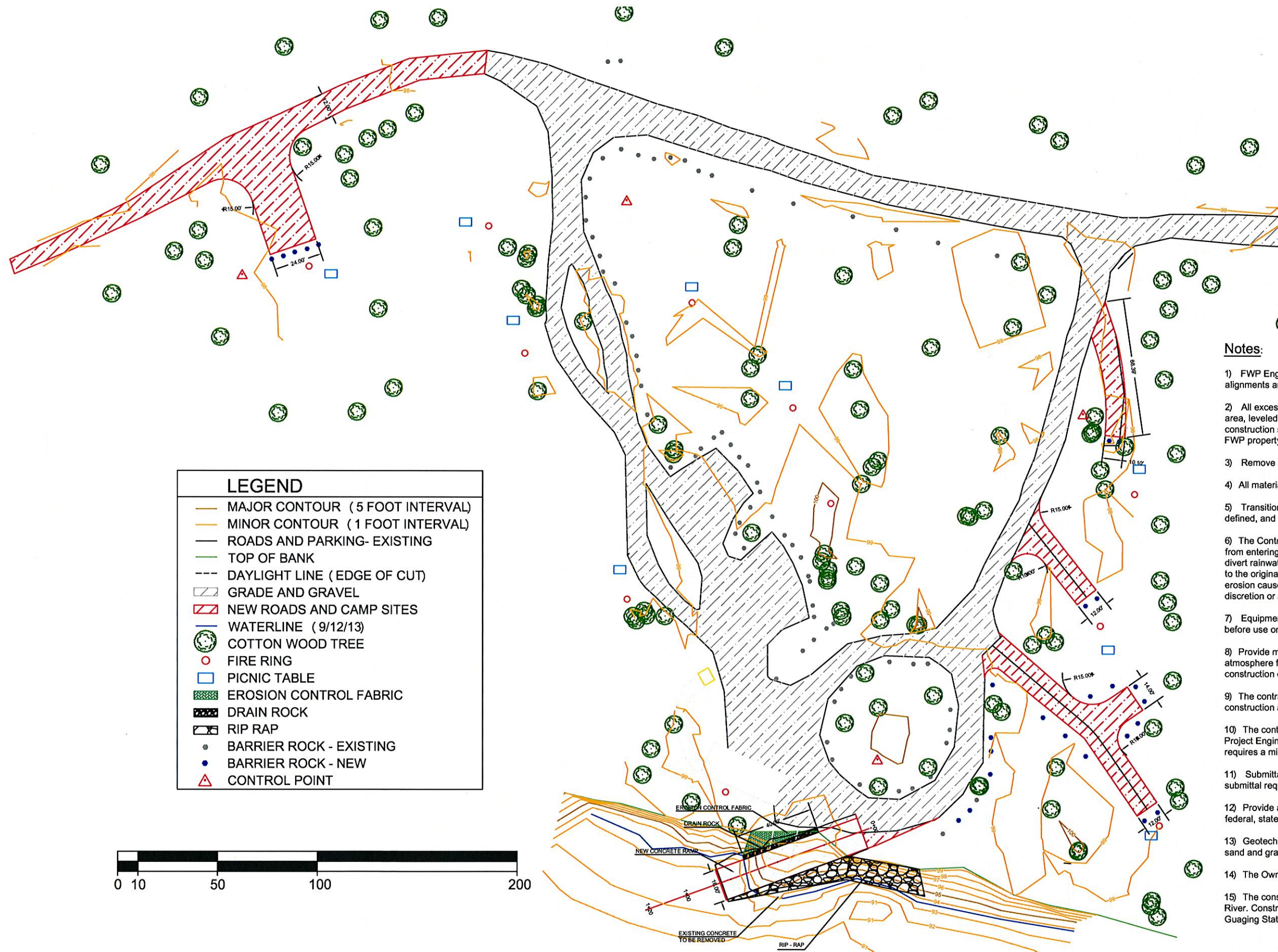
OVERALL SITE PLAN

York's Islands FAS near Townsend, MT



SHEET:

2
of
9



LEGEND

MAJOR CONTOUR (5 FOOT INTERVAL)

MINOR CONTOUR (1 FOOT INTERVAL)

ROADS AND PARKING- EXISTING

TOP OF BANK

DAYLIGHT LINE (EDGE OF CUT)

GRADE AND GRAVEL

NEW ROADS AND CAMP SITES

WATERLINE (9/12/13)

COTTON WOOD TREE

FIRE RING

PICNIC TABLE

EROSION CONTROL FABRIC

DRAIN ROCK

RIP RAP

BARRIER ROCK - EXISTING

BARRIER ROCK - NEW

CONTROL POINT

- Notes:
- 1) FWP Engineer will stake radius points, parking corners, centerline stations of alignments and provide reference elevations.

2) All excess excavated material from the stripping of top soil shall be removed to spoils area, leveled to match natural grades, and seeded. All areas disturbed during construction shall be seeded. Refer to Section 02936. The spoils area will be located on FWP property.

3) Remove existing boat ramp (12' x 52') and dispose of in a safe and legal manner.

4) All material removed from the site shall be disposed of in a safe and legal manner.

5) Transitions from new graveled areas to vegetated areas shall be uniform, well defined, and follow the alignment of the roads and parking layouts.

6) The Contractor shall use best management practices to prevent silt, soil and debris from entering the water. This may include straw, gravel or fabric. Temporary dikes to divert rainwater may be used, provided they are removed and the gravel or soil returned to the original condition. Exposed soil may require straw or similar cover to minimize erosion caused by rain. Other appropriate methods may be used at the Contractors' discretion or as directed by the owner.

7) Equipment used in or near water shall not leak fluids. It shall be power washed before use on the site and examined by the engineer.

8) Provide methods, means, and facilities to prevent contamination of soil, water, and atmosphere from discharge of noxious, toxic substances, and pollutants produced by construction operations.

9) The contractor is responsible for locating and protecting utilities within the construction area including access routes to the construction area.

10) The contractor is required to notify and coordinate all work activities with the FWP Project Engineer. Public notification of partial site closure may be necessary, and requires a minimum notice of seven days.

11) Submittals are required on all products used in the project. refer to specifications for submittal requirements.

12) Provide all temporary signing, personnel and traffic control devises as required by federal, state and local regulations.

13) Geotechnical Information: The soils at the site are sandy loams stratified with coarse sand and gravel. the depth to a restrictive feature is over 80 inches.

14) The Owner is responsible for obtaining all necessary permits.

15) The construction of the boat ramp will be dependant on the flow of the Missouri River. Construction may be delayed until flow levels are at or below 5.5 feet at the Toston Guaging Station. This elevation corresponds to roughly 96.00 on the local topo.

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144

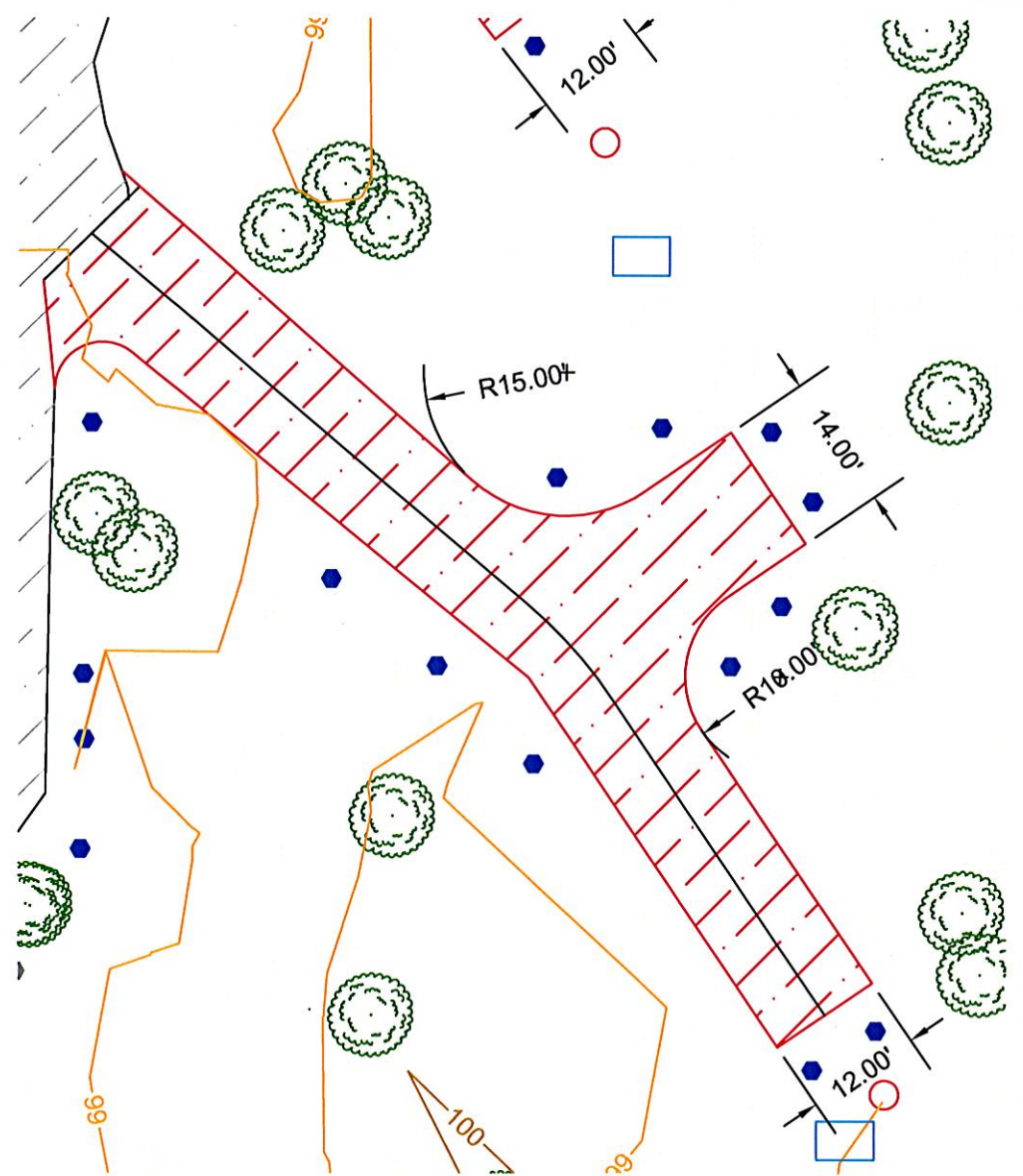
SITE PLAN

York's Islands FAS near Townsend, MT



SHEET:

3
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9

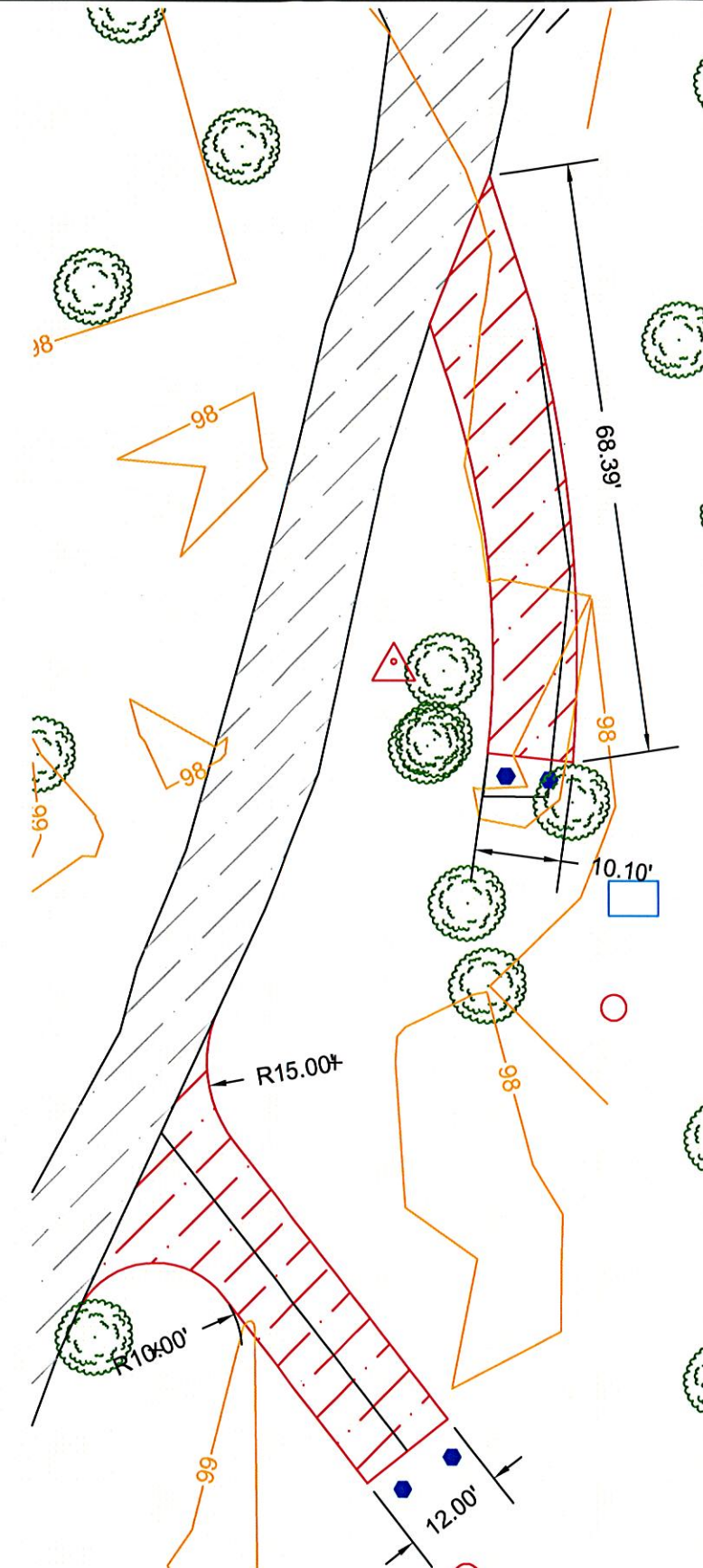


Notes:

- 1) FWP Engineer will stake radius points, parking corners, barrier locations and provide reference elevations, where necessary.
- 2) Refer to Typical Sections on Plan Sheet 2.
- 3) All material stripped for new road and parking construction shall be removed to local on site areas requiring seeding, leveled to match natural grades, and seeded.
- 4) All disturbed areas shall be seeded. See Section 02936
- 5) Transitions from new graveled areas to vegetated areas shall be uniform and follow the alignment of the roads and parking layouts.



LEGEND	
	MAJOR CONTOUR (5 FOOT INTERVAL)
	MINOR CONTOUR (1 FOOT INTERVAL)
	ROADS AND PARKING- EXISTING
	TOP OF BANK
	DAYLIGHT LINE (EDGE OF CUT)
	GRADE AND GRAVEL
	NEW ROADS AND CAMP SITES
	WATERLINE (9/12/13)
	COTTON WOOD TREE
	FIRE RING
	PICNIC TABLE
	EROSION CONTROL FABRIC
	DRAIN ROCK
	RIP RAP
	BARRIER ROCK - EXISTING
	BARRIER ROCK - NEW
	CONTROL POINT



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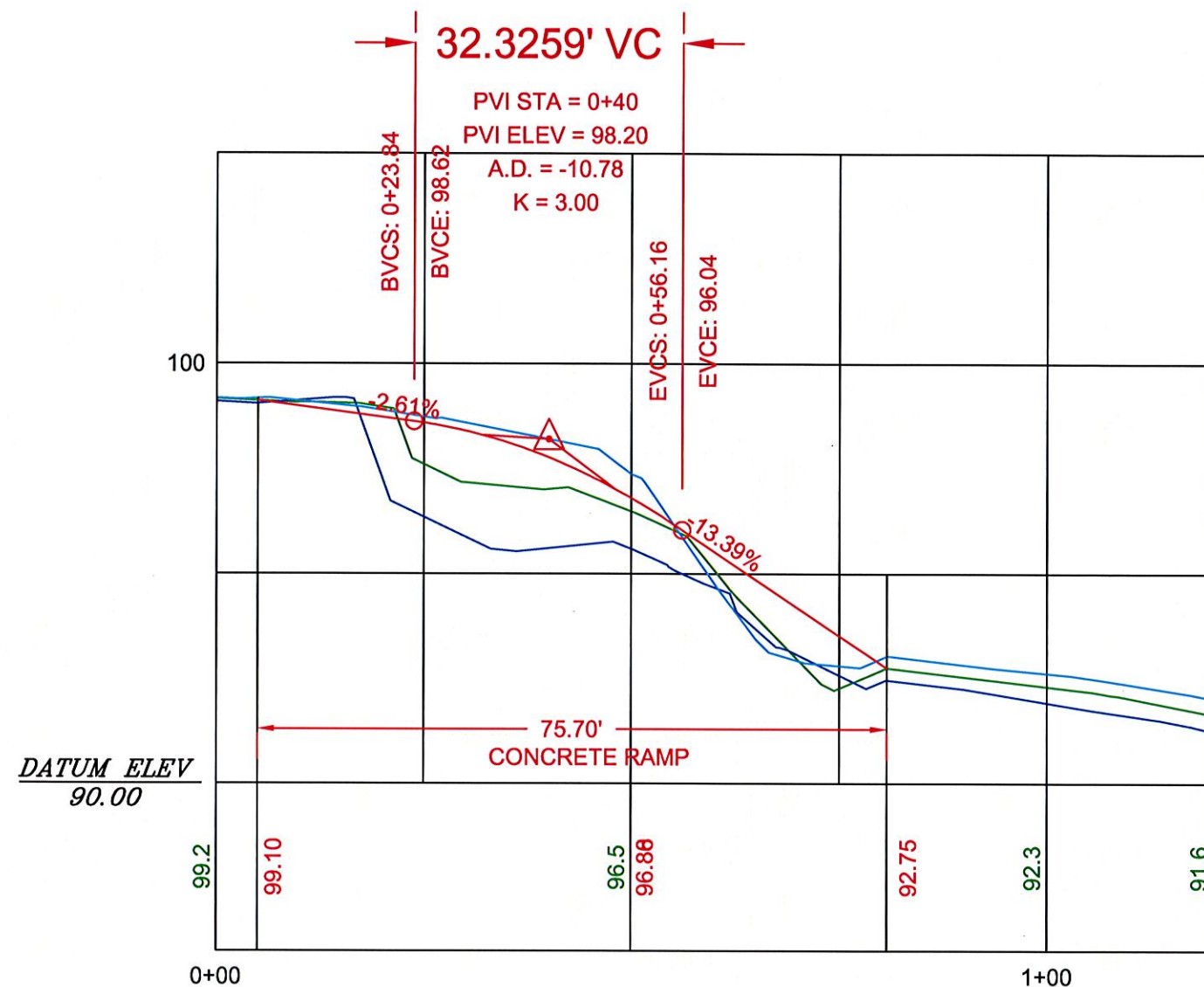


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NEW CAMP SITE DETAILS
York's Islands FAS near Townsend, MT

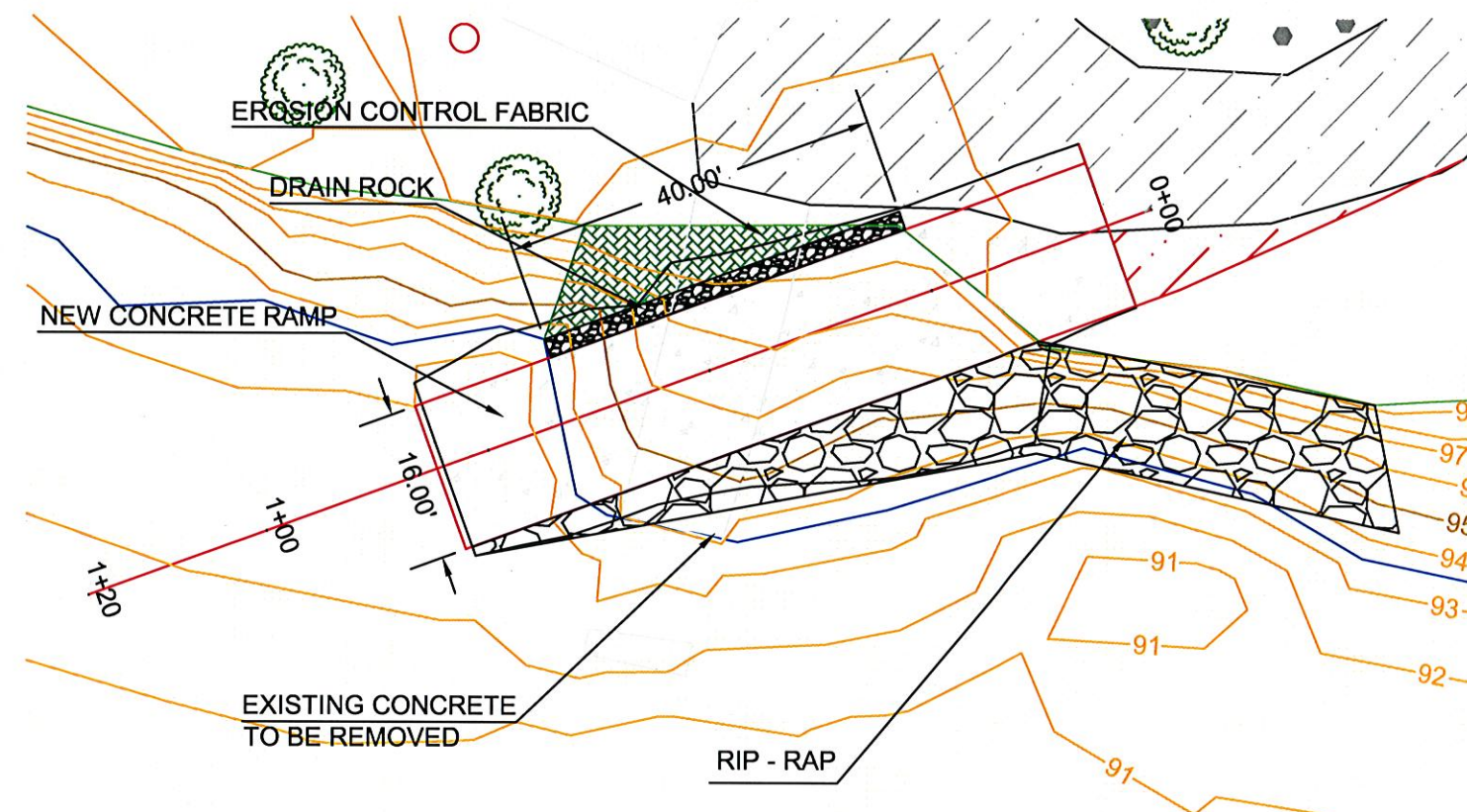


SHEET:
4
of
9



99.1	95.6	91.9	91.2
99.2	97.4	92.6	92.0

PROFILE LEGEND	
—	FINISH GRADE - CENTERLINE CONCRETE
—	EXISTING GRADE - CENTERLINE
—	EXISTING GRADE - 9' LEFT OF CENTERLINE
—	EXISTING GRADE - 9' RIGHT OF CENTERLINE



LEGEND	
—	MAJOR CONTOUR (5 FOOT INTERVAL)
—	MINOR CONTOUR (1 FOOT INTERVAL)
—	ROADS AND PARKING- EXISTING
—	TOP OF BANK
---	DAYLIGHT LINE (EDGE OF CUT)
▨	GRADE AND GRAVEL
▨	NEW ROADS AND CAMP SITES
—	WATERLINE (9/12/13)
○	COTTON WOOD TREE
○	FIRE RING
□	PICNIC TABLE
▨	EROSION CONTROL FABRIC
▨	DRAIN ROCK
▨	RIP RAP
•	BARRIER ROCK - EXISTING
•	BARRIER ROCK - NEW
△	CONTROL POINT



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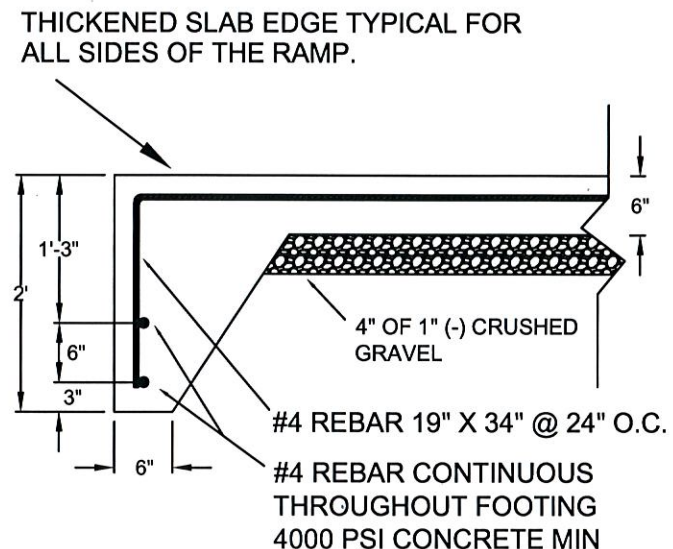


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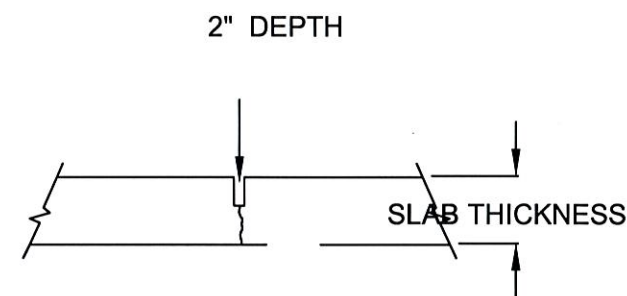
BOAT RAMP PLAN AND PROFILE
York's Islands FAS near Townsend, MT



SHEET: 5 of 9

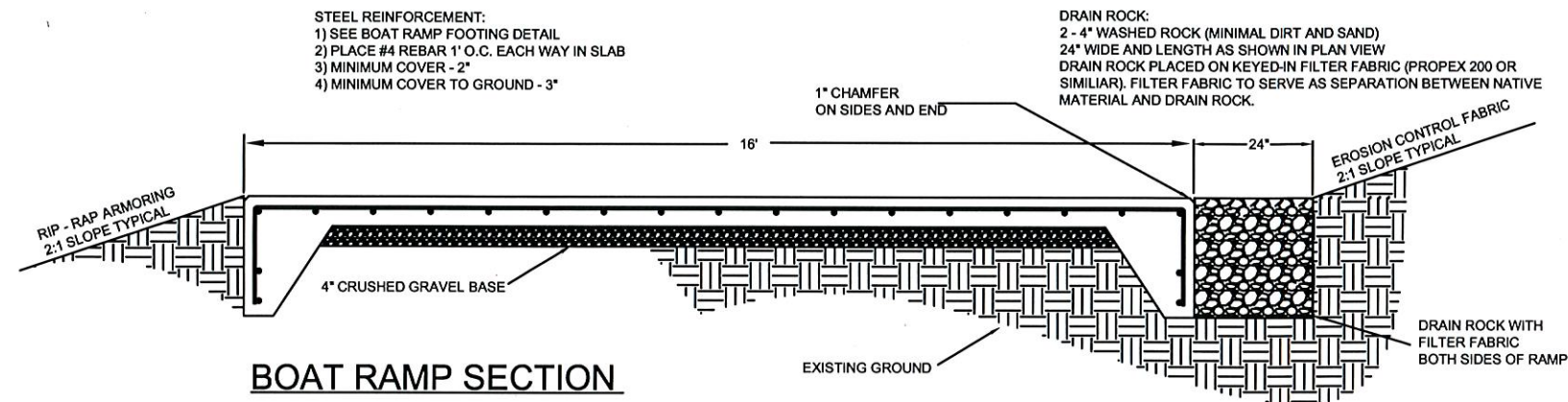


BOAT RAMP FOOTING DETAIL

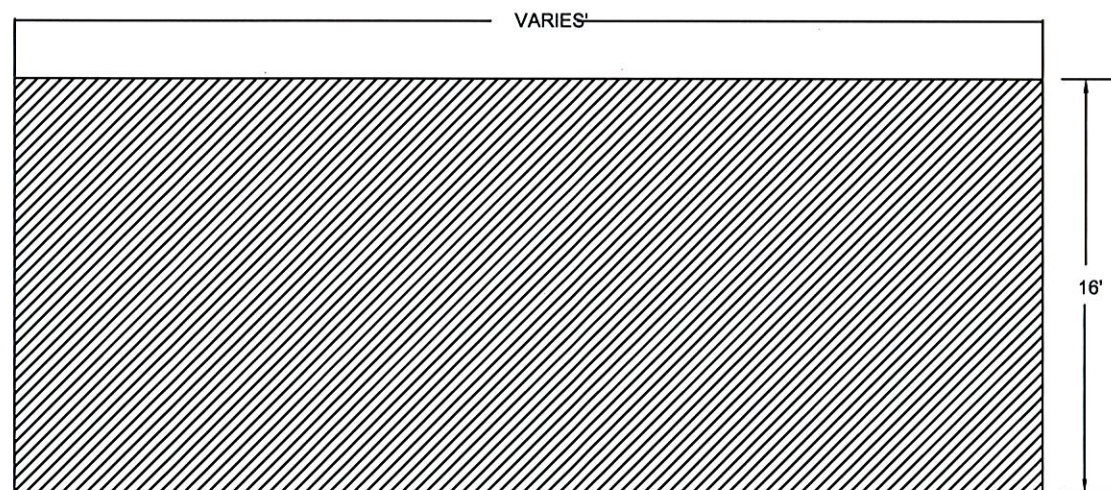


CONTROL JOINT DETAIL - 15' O.C.

SAW CUT CONTROL JOINT



BOAT RAMP SECTION



- NOTES:
1. ANGLE GROOVES AT 30 DEGREES DOWNWARD IN THE DIRECTION OF STREAMFLOW OR DOWNWIND SIDE OF RAMP ON LAKES.
 2. THE GROOVES ARE $\frac{1}{2}$ " DEEP. GROOVING TOOL WILL BE FURNISHED BY FWP.

CAST-IN-PLACE CONCRETE BOAT RAMP

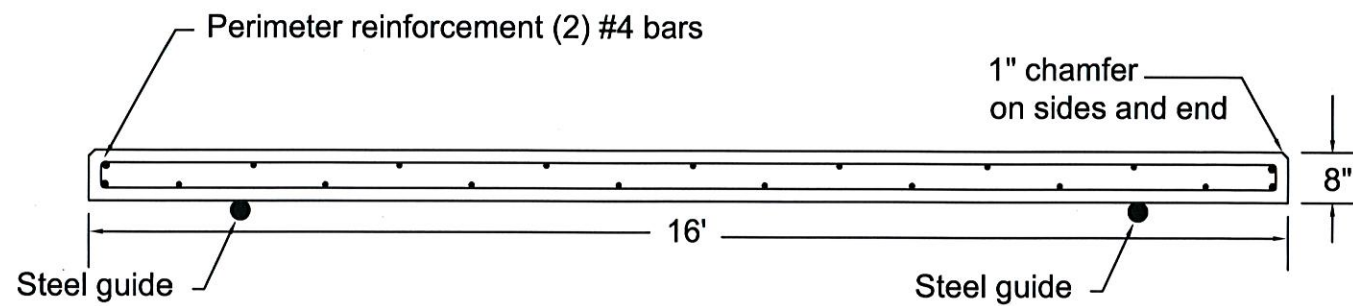
NOT TO SCALE PLAN VIEW

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CAST IN PLACE RAMP

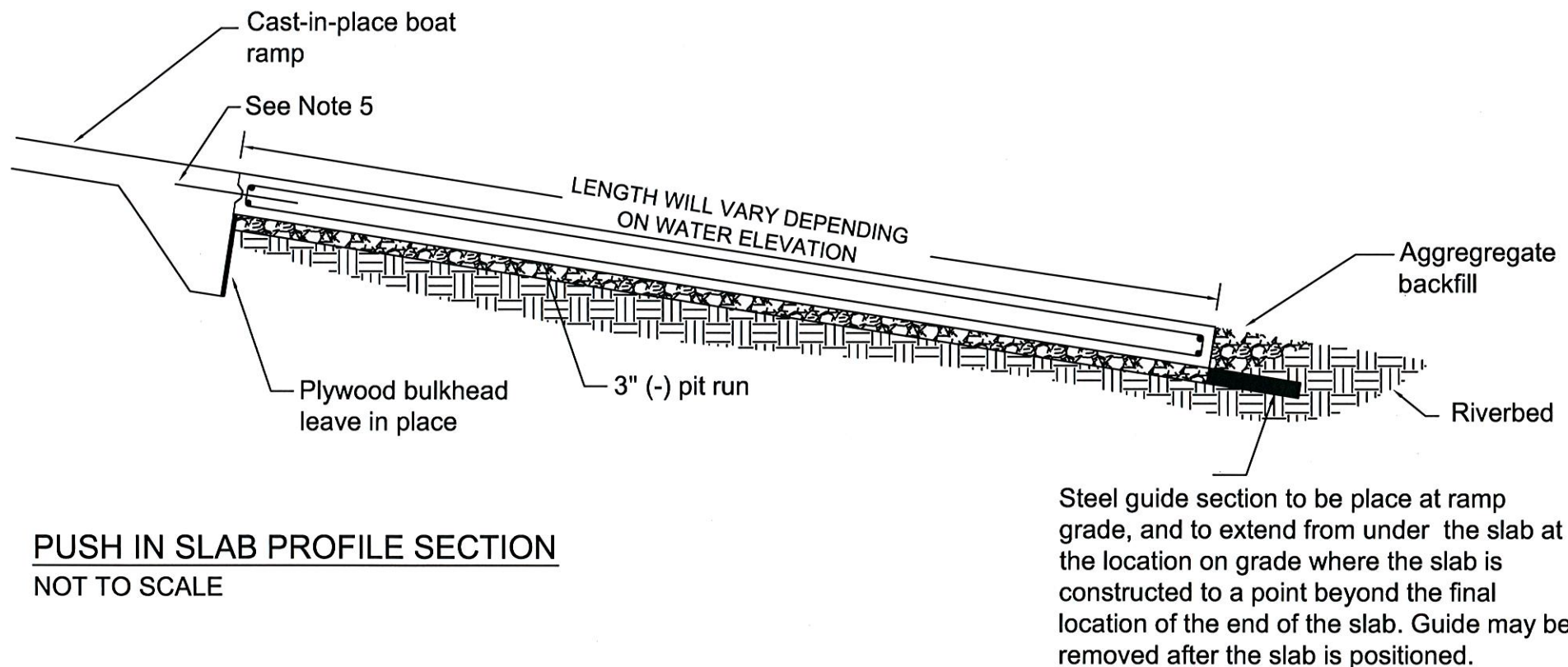
York's Islands FAS near Townsend, MT



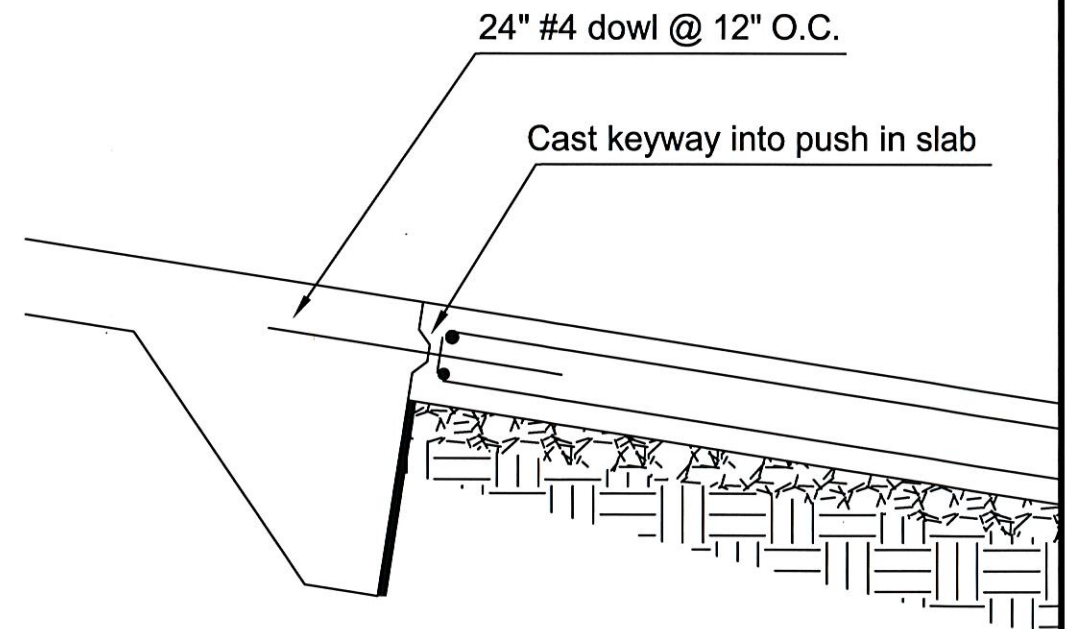
PUSH IN SLAB CROSS SECTION
NOT TO SCALE

Notes:

- 1) Form push-in slab on boat ramp grade.
- 2) Install push-in slab to match as evenly as possible to river bank elevations.
- 3) Place sub grade material into the water so the push in slab is fully supported by the sub grade when it is installed.
- 4) Reinforcement: 2 mats consisting of #4 Grade 40 rebar 2' o.c. each way, offset mats 1', allow 2" of concrete cover, each bar shall have a 4" hook at the perimeter and be tied to the perimeter bars.
- 5) Place 24" #4 rebar dowels at 12" o.c. through keyway cast in push in slab.
- 6) A plastic barrier is used as a separation between the sub grade and concrete when it is poured.
- 7) 3" Sched 80 steel pipes, or other approved sections, shall be placed at the bottom of the slab elevation extending past the final end position of the slab, and used to guide the slab into position. Steel guides may be removed after slab installation.
- 8) The push in slab finish shall have the same finish as the boat ramp.FWP will provide grooving tool.
- 9) Allow seven (7) days of curing time before the push in slab is installed.
- 10) Backfill the sides and end of the slab with clean aggregate.
- 11) Above water cast-in-place ramp is installed after below water push-in section is installed. Lengths of the slabs may vary according to water levels, and compensation will be based on the unit cost as bid.



PUSH IN SLAB PROFILE SECTION
NOT TO SCALE



CONNECTION DETAIL
NOT TO SCALE

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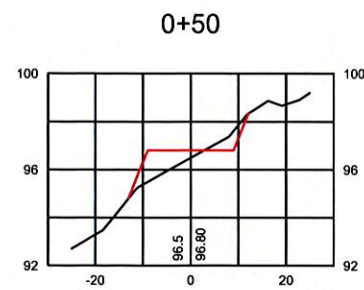
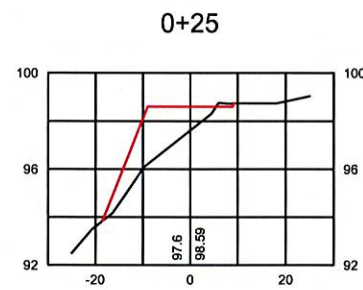
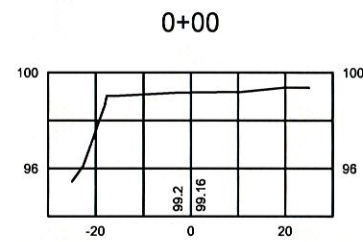
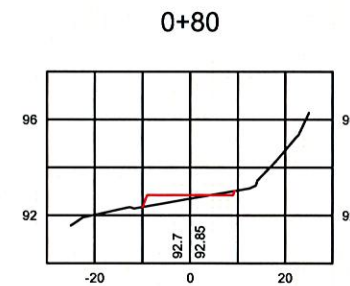
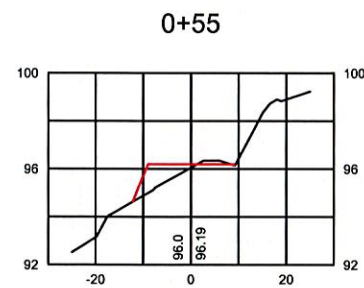
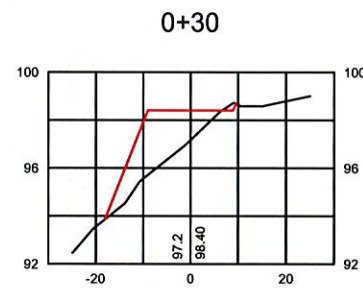
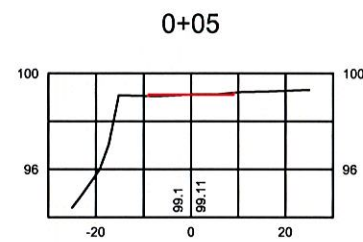
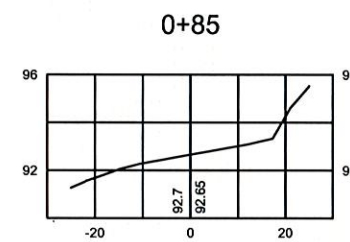
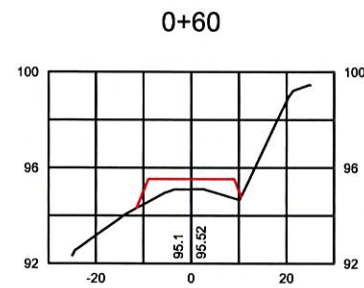
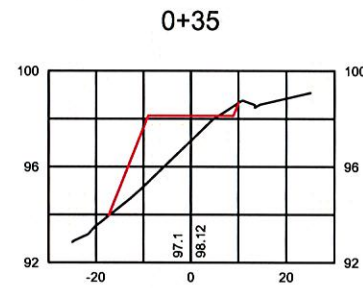
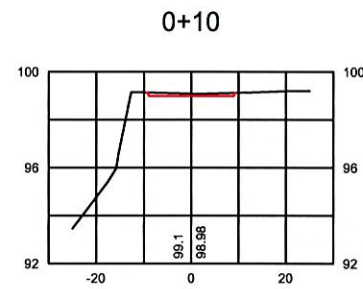
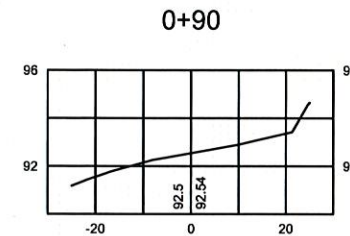
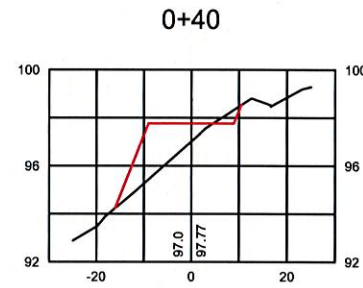
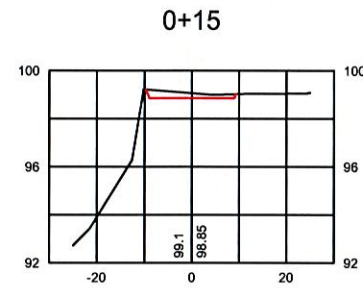
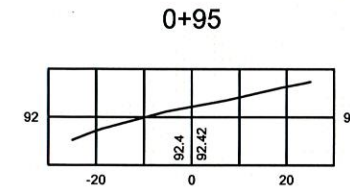
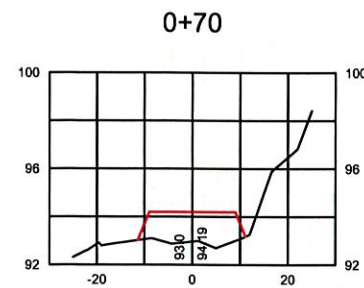
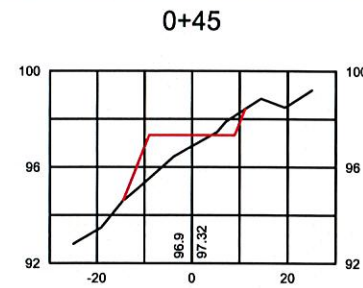
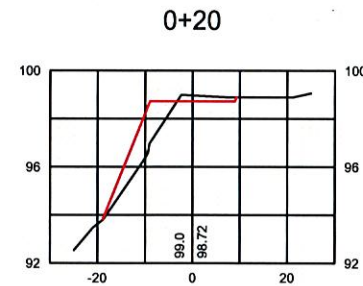


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148

PUSH IN SLAB
York's Islands FAS near Townsend, MT



SHEET:
7 of 9



STATION	AREAS Square Feet		VOLUMES Cubic Yards		CUMULATIVE VOLUMES Cubic Yards	
	CUT	FILL	CUT	FILL	CUT	FILL
0+00	0.00	0.00				
0+05	0.17	0.37	0.02	0.03	0.02	0.03
0+10	2.04	0.00	0.20	0.03	0.22	0.07
0+15	4.06	0.00	0.56	0.00	0.78	0.07
0+20	2.47	15.08	0.61	1.40	1.39	1.46
0+25	0.51	30.20	0.28	4.19	1.67	5.66
0+30	0.50	34.29	0.09	5.97	1.76	11.63
0+35	0.85	31.76	0.12	6.12	1.88	17.74
0+40	1.66	23.83	0.23	5.15	2.12	22.89
0+45	2.89	15.42	0.42	3.63	2.54	26.52
0+50	3.47	10.17	0.59	2.37	3.13	28.89
0+55	0.78	7.82	0.39	1.67	3.52	30.56
0+60	0.00	12.03	0.07	1.84	3.59	32.40
0+65	0.00	22.25	0.00	3.17	3.59	35.57
0+70	0.00	25.52	0.00	4.42	3.59	40.00
0+75	0.00	19.99	0.00	4.21	3.59	44.21
0+80	0.39	3.35	0.04	2.16	3.63	46.37
0+85	0.00	0.00	0.04	0.31	3.66	46.68
0+90	0.00	0.00	0.00	0.00	3.66	46.68
0+95	0.00	0.00	0.00	0.00	3.66	46.68
1+00	0.00	0.00	0.00	0.00	3.66	46.68
1+05	0.00	0.00	0.00	0.00	3.66	46.68
1+10	0.00	0.00	0.00	0.00	3.66	46.68
1+15	0.00	0.00	0.00	0.00	3.66	46.68
1+20	0.00	0.00	0.00	0.00	3.66	46.68

CROSS SECTION LEGEND	
	FINISH GRADE
	EXISTING GRADE

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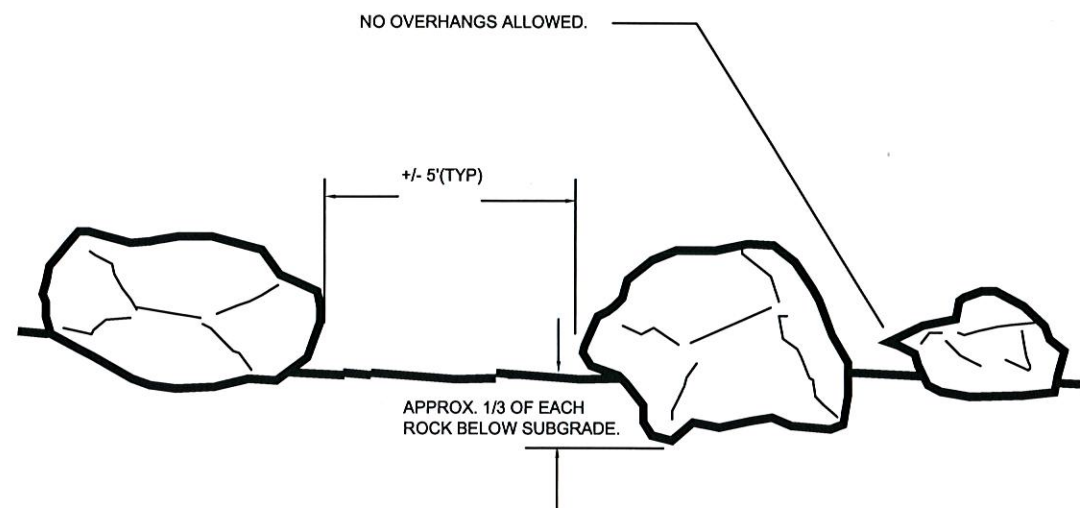


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BOAT RAMP CROSS SECTIONS
York's Islands FAS near Townsend, MT



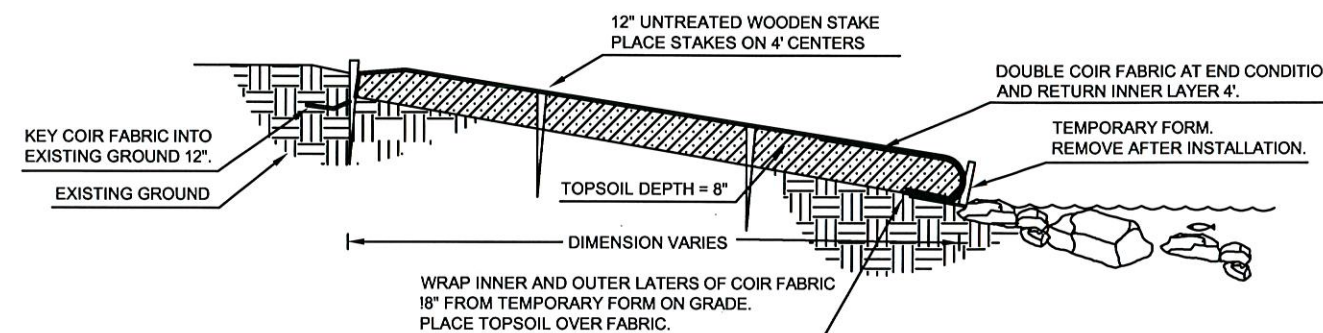
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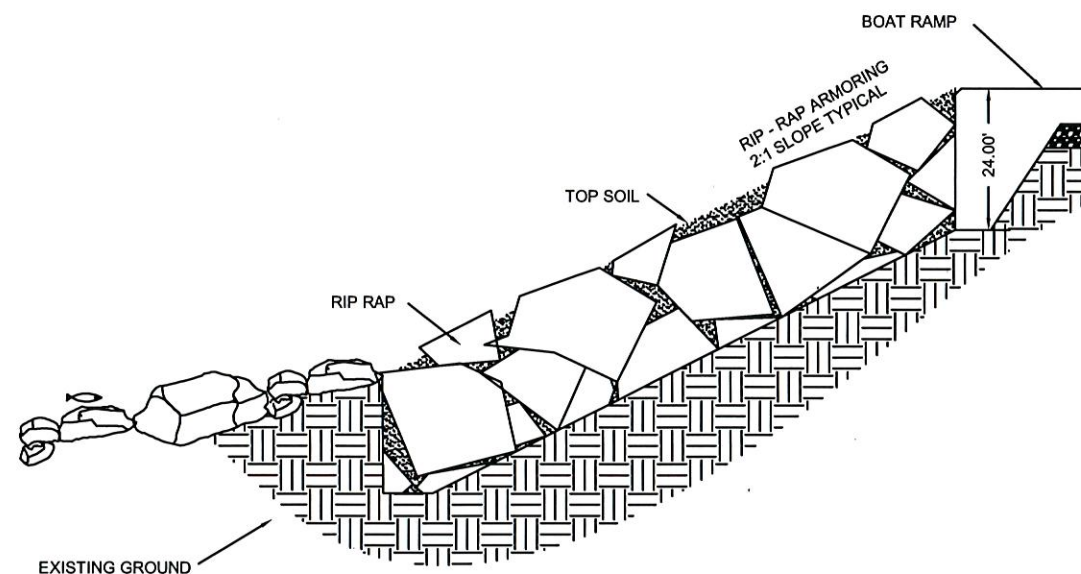
BARRIER ROCK DETAIL
NOT TO SCALE

BARRIER ROCK NOTES:

- 1) LANDSCAPE & BARRIER ROCK WILL BE PLACED AS SHOWN ON PLANS OR AS DESIGNATED BY FWP ENGINEER.
- 2) MINIMUM SIZE SHALL BE 6 CF. NO DIMENSION SHALL BE LESS THAN 1/3 OF THE LONGEST DIMENSION.
- 3) ROCK SHALL BE HARD, DURABLE WITH NO MAJOR MACHINE MARKS OR BLEMISHES. SUBMIT THE SOURCE INFORMATION TO THE FWP ENGINEER (5) DAYS PRIOR TO INSTALLATION.
- 4) BARRIER ROCKS SHALL BE SET SO THAT THEIR LONG AXIS IS PARALLEL TO THE GROUND AND ROAD SURFACING. THERE SHALL BE NO ACUTE ANGLES AT THE GROUND LINE.
- 5) APPROXIMATELY 1/3 OF EACH ROCK SHALL BE PLACED BELOW GRADE.
- 6) UNLESS OTHERWISE DIRECTED BARRIERS SHALL BE PLACED APPROXIMATELY 5' APART FROM EDGE TO EDGE.
- 7) THE PROPER FINISHED GRADE WILL BE ESTABLISHED AROUND EACH ROCK.



EROSION CONTROL FABRIC SECTION
NOT TO SCALE



RIP RAP SECTION
NOT TO SCALE

RIP RAP SECTION NOTES:

1. Riprap Materials: Provide in accordance with State of Montana Transportation standards for Class II Riprap. 2' diameter allowing 40% smaller by weight.
2. Provide stone that is hard, durable and angular in shape, resistant to water action and weathering, free from overburden, spoil, shale, structural defects and organic material.
3. Each stone must have its greatest dimension not greater than three times its least dimension.
4. Do not use rounded stone or boulders from a streambed source as rip-rap. Do not use shale or stones with shale seams.
5. Angular faces of stones shall inter-lock to provide stable surface.
6. Place riprap along edges of concrete boat ramp where shown.
7. Installed Thickness: 2 ft average.
8. Fill voids with top soil stored from site excavation.

J. Kevin McDonnell	3.2014				
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**Montana Fish,
Wildlife & Parks**
150

BARRIER ROCK AND EROSION CONTROL DETAILS
York's Islands FAS near Townsend, MT



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9